USSN: 09/986,828
Art Unit: 2874

Amendments to Claims

Please amend the claims as follows:

1(currently amended). A planar waveguide grating device, comprising:

~~a slab waveguide defining~~ an input channel and a plurality of output channels; and

an echelle grating having a multitude of facets, each of said facets being blazed with respect to a pre-selected output ~~output~~ channel position ~~position~~, and ~~each~~ said facets each having an elliptical curvature and lying on an arc of a series of respective ellipses having a first focal point at said input channel and a second focal point at said pre-selected output channel position, whereby said facets ~~are so~~are ~~as to be~~ astigmatic with respect to ~~the~~ said input channel and said pre-selected output channel position ~~position~~.

2(currently amended). A planar waveguide grating device as claimed in claim 1, wherein different groups of facets are ~~astigmatically~~ blazed with respect to ~~preselected sets of~~ said input channel and ~~blazing positions~~different pre-selected output channel positions, and said facets within each group are astigmatic with respect to said pre-selected output channel position associated with that particular group.

3(original). A planar waveguide grating device as claimed in claim 1, wherein said facets are arranged such that the input and output channels lie on a Rowland circle.

4(cancelled).

5(currently amended). A planar waveguide grating device as claimed in claim 14, wherein said echelle grating is configured to operate in at least the 20th order.

6(currently amended). A planar waveguide grating device as claimed in claim 1, wherein said echelle grating is configured to operate in at least the 450th order.

7(cancelled).

8(original). A method of making a planar waveguide grating device, comprising:

~~providing a slab waveguide~~ defining an input channel and a plurality of output channels; and

forming an echelle grating having a multitude of facets, each of said facets being blazed with respect to a pre-selected output channel position, and providing ~~each~~ said facets with an elliptical curvature lying on an arc of a series of respective ellipses having a first focal point at

said input channel and a second focal point at said preselected output channel position ~~so that it is~~whereby said facets are astigmatic with respect to the input channel and said preselected output channel position.

9(original). A method as claimed in claim 8, wherein said facets are located such that said input and output channels lie on a Rowland circle.

10(cancelled).

11(original). A method as claimed in claim 8, wherein said echelle grating is configured to operate in at least the 20th order.

12(original). A method as claimed in claim 8, wherein said echelle grating is configured to operate in at least the 450th order

13(claim 12 renumbered - cancelled).

14(original claim 13 currently amended). A method as claimed in claim ~~12~~13, wherein said ~~slab waveguide and said~~ echelle grating ~~are~~ is fabricated on a silicon wafer.

15(new). A method as claimed in claim 1, wherein said pre-selected output channel position is common to all said facets.

16(new) A method as claimed in claim 8, wherein said pre-selected output channel position is common to all said facets.

17(new). A method as claimed in claim 8, wherein different groups of facets are blazed with respect to said input channel and different preselected output channel positions, and said facets within each group are astigmatically blazed with respect to said preselected output channel position associated with that particular group.

18(new) A planar waveguide grating device, comprising:

an input channel and a plurality of output channels lying, said input and output channels lying on a Rowland circle; and

an echelle grating having a multitude of facets, each of said facets being blazed with respect to a preselected output channel position, and said facets each having an elliptical curvature and lying on an arc of a series of respective ellipses having a first focal point at said input channel and a second focal point at said preselected output channel position, whereby said

facets are astigmatic with respect to said input channel and said preselected output channel position.

19(new) A planar waveguide grating device as claimed in claim 18, wherein said preselected output channel position is common to all said facets.

20(new) A planar waveguide grating device as claimed in claim 18, wherein different groups of facets are blazed with respect to said input channel and different pre-selected output channel positions, and said facets within each group are astigmatic with respect to said pre-selected output channel position associated with that particular group.

21.(new) A planar waveguide grating device as claimed in claim 18, wherein the facet size lies in the range 4.8 to 7.4 μm.